VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Industrial permit. The effluent limitations contained in this permit will maintain the Surface Water Quality Standards of 9 VAC 25-260. The discharge results from the operation of a treatment plant serving a laundromat, restaurant, convenience store, and offices. This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address: SIC Code: 7215 – Coin-Operated Laundries
   Crossroads Village Center STP
   P.O. Box 149
   North Garden, VA 22959
   Location: 4916 Plank Road, North Garden, VA

2. Permit No. VA0083291 Expiration Date: December 31, 2009

3. Owner Contact: Name: Werner Hambsch
   Title: President, North Garden Crossroad, Inc.
   Telephone No: 434-293-9902

4. Application Complete Date: December 31, 2008

   Permit Drafted By: Keith Showman Date: June 8, 2009
   Reviewed By: Eric Millard Date: June 10, 2009
   Brandon Kiracofe Date: June 16, 2009

   Public Comment Period: July 7, 2009 to August 7, 2009

5. Annual Permit Maintenance Fee per 9 VAC 25-20-142: $2,040.00
   VPDES Industrial Minor / No Standard Limits
   Highest Permitted Flow: 0.020 MGD TMP? No > 5 outfalls? No

6. Receiving Stream Name: South Branch N.F. Hardware River River Mile: 3.61
   Basin: James (Middle) Subbasin: N/A
   Section: 10 Class: III
   Special Standards: None
   Impaired? Yes Tidal Waters? No
   Watershed Name: VAV-H18R – North Fork Hardware River/South Fork Hardware River

7. Operator License Requirements per 9 VAC 25-31-200.C: None

8. Reliability Class per 9 VAC 25-790: II (Assigned on January 23, 1990)

9. Permit Characterization:

   ☑ Private ☐ Federal ☐ State ☐ POTW ☐ PVOTW
   ☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

10. Description of Treatment Works: **Appendix A**

    Total Number of Outfalls = 1

    Operation and Maintenance (O&M) Manual: Approved on December 15, 1993; revised and approved on August 12, 2004.

11. Discharge Location Description and Receiving Waters Information: **Appendix B**

    Topo Map Name: Covesville Topo Map Number: 154-B

12. Antidegradation Review & Comments per 9 VAC 25-260-30: Tier 2

    The State Water Control Board's Water Quality Standards (WQS) includes an antidegradation policy. All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

    The antidegradation review begins with a Tier determination. The South Branch N.F. Hardware River in the immediate vicinity of the discharge is listed as impaired for bacteria; however, a bacteria impairment is not used as a sole basis for classifying a receiving stream as Tier 1. Because there are no other data available that indicate water quality criteria either have been violated or are barely met, the South Branch N.F. Hardware River in the immediate vicinity of Outfall 001 is determined to be a Tier 2 water body. Since the quality of Tier 2 waters is better than that required by the standards, no significant degradation of the existing quality will be allowed.

    Because there was no proposed expansion for the existing discharge, antidegradation baselines were not calculated for any toxic parameter. If this permit action had included an expansion of the design capacity for this facility, then baselines would have been calculated for all toxic parameters as not more than 25% of the unused assimilative capacity of the criteria for the protection of aquatic life (acute and chronic) and not more than 10% for the protection of human health. The unused assimilative capacity is defined as the difference between existing water quality and the criterion for a specific pollutant.

    The DO antidegradation baseline was determined to be 6.8 mg/L.

13. Site Inspection: Performed by: Keith Showman Date: June 4, 2009

14. Effluent Screening and Effluent Limitations: **Appendix C**

15. Rationale for Toxics Management Program (TMP) Requirements: N/A

16. Management of Sludge:
    Liquid sludge will be transported to Moores Creek Regional STP (VA0025518) for further treatment in accordance with the Sludge Management Plan, which is re-approved at this reissuance.

17. Permit Changes and Bases for Special Conditions: **Appendix D**

18. Material Storage per 9 VAC 25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

19. Antibacksliding Review per 9 VAC 25-31-220.L: This permit complies with Antibacksliding provisions of the VPDES Permit Regulation.

20. Impaired Use Status Evaluation per 9 VAC 25-31-220.D: The South Branch N.F. Hardware River in the vicinity of Outfall 001 is included in the Hardware River Bacteria TMDL (represented by E. coli) which was approved on April 10, 2008. Crossroad Village Center STP was assigned an E. coli waste load allocation (WLA) of 3.48×10^{11} cfu/year in the Hardware River Bacteria TMDL. Based on the facility's design flow of 0.020 MGD, the E. coli waste load allocation corresponds to a concentration limit of 126 cfu/100 mL.

21. Regulation of Users per 9 VAC 25-31-280.B.9: N/A – This is an industrial facility that does not accept wastewater from anyone other than the owner.

22. Storm Water Management per 9 VAC 25-31-120: Application Required? ☐ Yes ☑ No

    If "No," check one:
    - ☐ STPs: This facility does not have a design flow ≥ 1.0 MGD, nor is it required to have an approved POTW pretreatment program under 9 VAC 25-31-10 et seq.
    - ☑ Others: This facility's SIC Code(s) and activities do not fall within the categories for which a Storm Water Application submittal is required.

23. Compliance Schedule per 9 VAC 25-31-250: There is no compliance schedule required for this discharge.

24. Variances/Alternative Limits or Conditions per 9 VAC 25-31-280.B, 100.J, 100.P, and 100 L: The permittee requested a waiver from sampling and reporting Fecal Coliform as part of the permit application. The waiver request has been approved based on the justification provided by the permittee.

25. Financial Assurance Applicability per 9 VAC 25-650-30: N/A – This is an industrial facility and does not serve private residences.

26. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☑ No

27. Nutrient Trading Regulation per 9 VAC 25-820:
    General Permit Required: ☐ Yes ☑ No If Yes: Permit No.:

28. Threatened and Endangered (T&E) Species Screening per 9 VAC 25-260-20 B.8: Because this is not a permit issuance or a reissuance that allows for increased discharge flows, T&E screening is not required.

29. Public Notice Information per 9 VAC 25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Keith A. Showman at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7836, keith.showman@deq.virginia.gov.

    Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

30. Historical Record:
    - VPDES Permit No. VA0083291 was issued on January 23, 1990, for a treatment facility with a design flow of 0.020 MGD

31. VPDES Application:
    The application for this reissuance was submitted on the forms associated with a sewage treatment plant as done during the previous permit reissuance. During the review of the contributing flow data it was determined that greater than 50% of the flow is from non-domestic sources; therefore, the facility has been classified as an industrial facility during this reissuance for which EPA Forms 1 and 2C are typically submitted. These forms will not be required during this reissuance since the forms on file provide all the necessary information to prepare a legally and technically defensible draft permit. The facility's next application will need to be submitted on the appropriate forms.

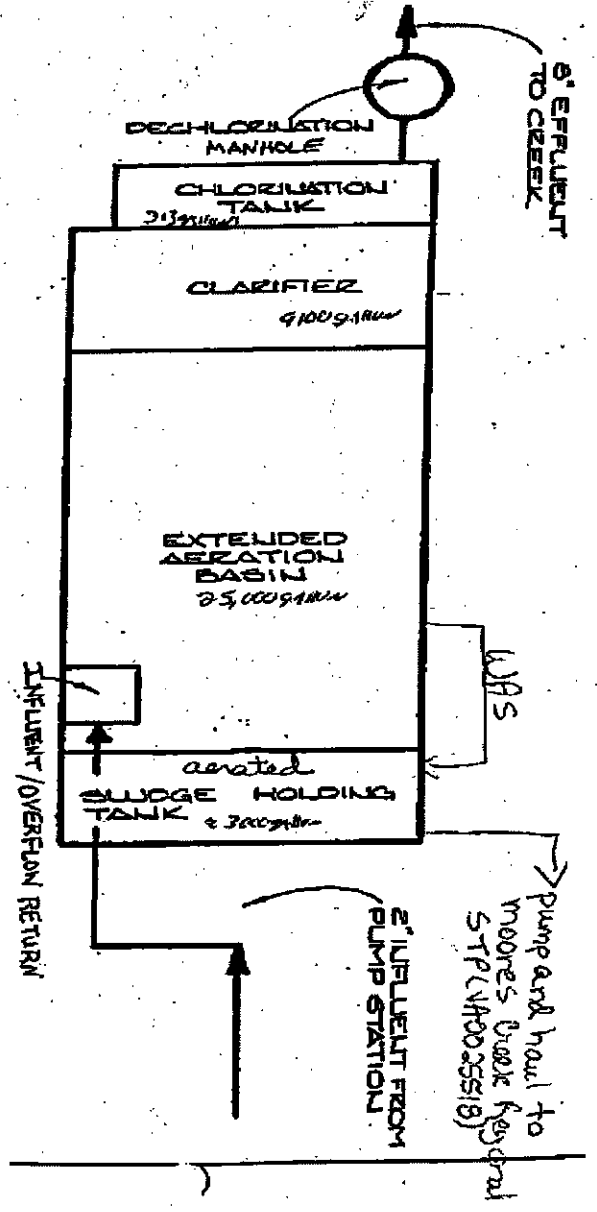
APPENDIX A

DESCRIPTION OF TREATMENT WORKS

The facility serves all of the waste generated from a laundromat, restaurant, convenience store, and offices at the Crossroads Village Center in Albemarle County, Virginia. The permittee projected the percentage of flow from non-domestic and domestic sources to be 82% and 18% respectively during the next permit cycle. The treatment facility consists of an extended aeration package plant with aeration basin, clarifier, chlorination, and dechlorination.

Annual average daily flow = 0.0048 MGD (2008 data)
Design Capacity = 0.020 MGD

Flow Schematic



NPDES PERMIT RATING WORK SHEET

Facilities identified under SIC Code 7215, 5812, and 4952 have the following characteristics as defined in Appendix A to the NPDES Permit Rating Work Sheet found in the VPDES Permit Manual.

1987 SIC Code	1987 SIC Code Title	40 CFR 444 Sub-Part	Sub-part Title	Human Health Toxicity Number	Total Toxicity Number	Industrial Sub-category Number
7215	Coin-Operated Laundries & Dry Cleaning	1	Coin-Operated Laundries	3	3	0

Factor 1 – Toxic Pollutant Potential – This rating is prescribed by the worksheet instructions regarding Coin-Operated Laundries & Dry Cleaning.

Factor 2 – Flow/Stream Flow Volume – Section B, Type II is selected because the discharges have the potential to contain process wastewater that is between 10% and 50% of the receiving stream low flow.

Factor 3.A. – The permit contains limits for BOD_5.

Factor 3.B. – The permit contains limits for TSS.

Factor 3.C. – The permit does not contain limits for Nitrogen.

Factor 4. – Public Health Impact – There is a public drinking water supply located within 50 miles downstream of the discharge.

Factor 5.A. –The permit contains permit limitations based on the WQSs for pH, TRC, and E. coli.

Factor 5.B. – The receiving water is impaired for bacteria and contains limits for E. coli.

Factor 5.C. – The permit does not contain Toxics Management Program requirements.

Factor 6. – Proximity to Near Coastal Waters – This discharge does not occur to a "near coastal water".

NPDES NO. **VA0083291**

Facility Name: **Crossroad Village Center STP**

City: **Albemarle County**

Receiving Water: **South Branch N.F. Hardware River**

Reach Number:

[X] Regular Addition
[ ] Discretionary Addition
[ ] Score change, but no status change
[ ] Deletion

Is this facility a steam electric power plant (SIC=4911) with one or more of the following characteristics?
1. Power output 500 MW or greater (not using a cooling pond/lake)
2. A nuclear power plant
3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rate
[ ] YES; score is 600 (stop here) [X] NO (continue)

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

[ ] YES; score is 700 (stop here)
[X] NO (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: _____ Primary SIC Code: **7215** Other SIC Codes: 5812 & 4952
Industrial Subcategory Code: **000** (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
[ ] No process waste streams			[X] 3.	3	15	[ ] 7.	7	35
[ ] 1.	1	5	[ ] 4.	4	20	[ ] 8.	8	40
[ ] 2.	2	10	[ ] 5.	5	25	[ ] 9.	9	45
			[ ] 6.	6	30	[ ] 10.	10	50

Code Number Checked : **3**

Total Points Factor 1: 15

FACTOR 2: Flow/Stream Flow Volume *(Complete either Section A or Section B; check only one)*

Section A [ ] Wastewater Flow Only Considered

Wastewater Type Concentration (See Instructions)		Code	Points
Type I: Flow < 5 MGD	[ ]	11	0
Flow 5 to 10 MGD	[ ]	12	10
Points			
Flow > 10 to 50 MGD	[ ]	13	20
Flow > 50 MGD	[ ]	14	30
Type II: Flow < 1 MGD	[ ]	21	10
Flow 1 to 5 MGD	[ ]	22	20
Flow > 5 to 10 MGD	[ ]	23	30
Flow > 10 MGD	[ ]	24	50
Type III: Flow < 1 MGD	[ ]	31	0
Flow 1 to 5 MGD	[ ]	32	10
Flow > 5 to 10 MGD	[ ]	33	20
Flow > 10 MGD	[ ]	34	3

Section B [X] Wastewater and Stream Flow Considered

Wastewater Type (See Instructions)	Percent of instream Wastewater at Receiving Stream Low Flow		Code
Type I/III:	< 10 %	[ ]	41	0
	10 % to < 50 %	[ ]	42	10
	> 50 %	[ ]	43	20
Type II:	< 10 %	[ ]	51	0
	10 % to <50 %	[X]	52	20
	> 50 %	[ ]	53	30

Code Checked from Section A or B: **52**

Total Points Factor 2: 20

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutant: (check one) [X] BOD [ ] COD [ ] Other: N/A

			Code	Points
Permit Limits: (check one)	[X]	< 100 lbs/day	1	0
	[ ]	100 to 1000 lbs/day	2	5
	[ ]	> 1000 to 3000 lbs/day	3	15
	[ ]	> 3000 lbs/day	4	20

Code Checked : 1

Points Scored: 0

B. Total Suspended Solids (TSS)

			Code	Points
Permit Limits: (check one)	[X]	< 100 lbs/day	1	0
	[ ]	100 to 1000 lbs/day	2	5
	[ ]	> 1000 to 5000 lbs/day	3	15
	[ ]	> 5000 lbs/day	4	20

Code Checked : 1

Points Scored: 0

C. Nitrogen Pollutant: (check one) [ ] Ammonia [X] Other: N/A

		Nitrogen Equivalent	Code	Points
Permit Limits: (check one)	[ ]	< 300 lbs/day	1	0
	[ ]	300 to 1000 lbs/day	2	5
	[ ]	> 1000 to 3000 lbs/day	3	15
	[ ]	> 3000 lbs/day	4	20

Code Checked : N/A

Points Scored: N/A

Total Points Factor 3: 0

FACTOR 4: Public Health Impact

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this includes any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above referenced supply.

[X]YES (If yes, check toxicity potential number below)

[ ] NO (If no, go to Factor 5)

Determine the human health toxicity potential from Appendix A. Use the same SIC code and subcategory reference as in Factor 1. (Be sure to use the human health toxicity group column [ ] check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
[ ] No process waste streams	0	0	[X] 3.	3	0	[ ] 7.	7	15
[ ] 1.	1	0	[ ] 4.	4	0	[ ] 8.	8	20
[ ] 2.	2	0	[ ] 5.	5	5	[ ] 9.	9	25
			[ ] 6.	6	10	[ ] 10.	10	30

Code Number Checked : 3

Total Points Factor 4: 0

FACTOR 5: Water Quality Factors

A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been assigned to the discharge:

		Code	Points
[X]	Yes	1	10
[ ]	No	2	0

B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

		Code	Points
[ ]	Yes	1	0
[X]	No	2	5

C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?

		Code	Points
[ ]	Yes	1	10
[X]	No	2	0

Code Number Checked : A 1 B 2 C 2

Total Points Factor 5: A **10** + B **5** + C **0** = **15** TOTAL

FACTOR 6: Proximity to Near Coastal Waters

A. Base Score: Enter flow code here (from Factor 2): **52**

Enter the multiplication factor that corresponds to the flow code: **0.30**

Check appropriate facility HPRI Code (from PCS):

	HPRI#	Code	HPRI Score
[ ]	1	1	20
[ ]	2	2	0
[ ]	3	3	30
[X]	4	4	0
[ ]	5	5	20

Flow Code	Multiplication Factor
11, 31, or 41	0.00
12, 32, or 42	0.05
13, 33, or 43	0.10
14 or 34	0.15
21 or 51	0.10
22 or 52	0.30
23 or 53	0.60
24	1.00

HPRI code checked: 4

Base Score: (HPRI Score) **0** x (Multiplication Factor) **0.30** = **0** (TOTAL POINTS)

B. Additional Points --- NEP Program
For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay? **N/A**

	Code	Points
[ ] Yes	1	10
[ ] No	2	0

C. Additional Points --- Great Lakes Area of Concern
For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see Instructions)? **N/A**

	Code	Points
[ ] Yes	1	10
[ ] No	2	0

Code Number Checked : A 4 B N/A C N/A

Points Factor 6: A **0** + B **N/A** + C **N/A** = **0** TOTAL

Score Summary

Factor	Description	Total Points
1	Toxic Pollutant Potential	15
2	Flows/Stream Flow Volume	20
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	15
6	Proximity to Near Coastal Waters	0
	TOTAL (Factors 1-6)	50

S1. Is the total score equal to or greater than 80? [ ] Yes (Facility is a major) [X] No

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

[X] No

[ ] Yes (Add 500 points to the above score and provide reason below:

Reason: _____

New Score: 50

Old Score: _____

Keith A. Showman
Permit Reviewer's Name
540-574-7836
Phone Number
June 9, 2009
Date

APPENDIX B

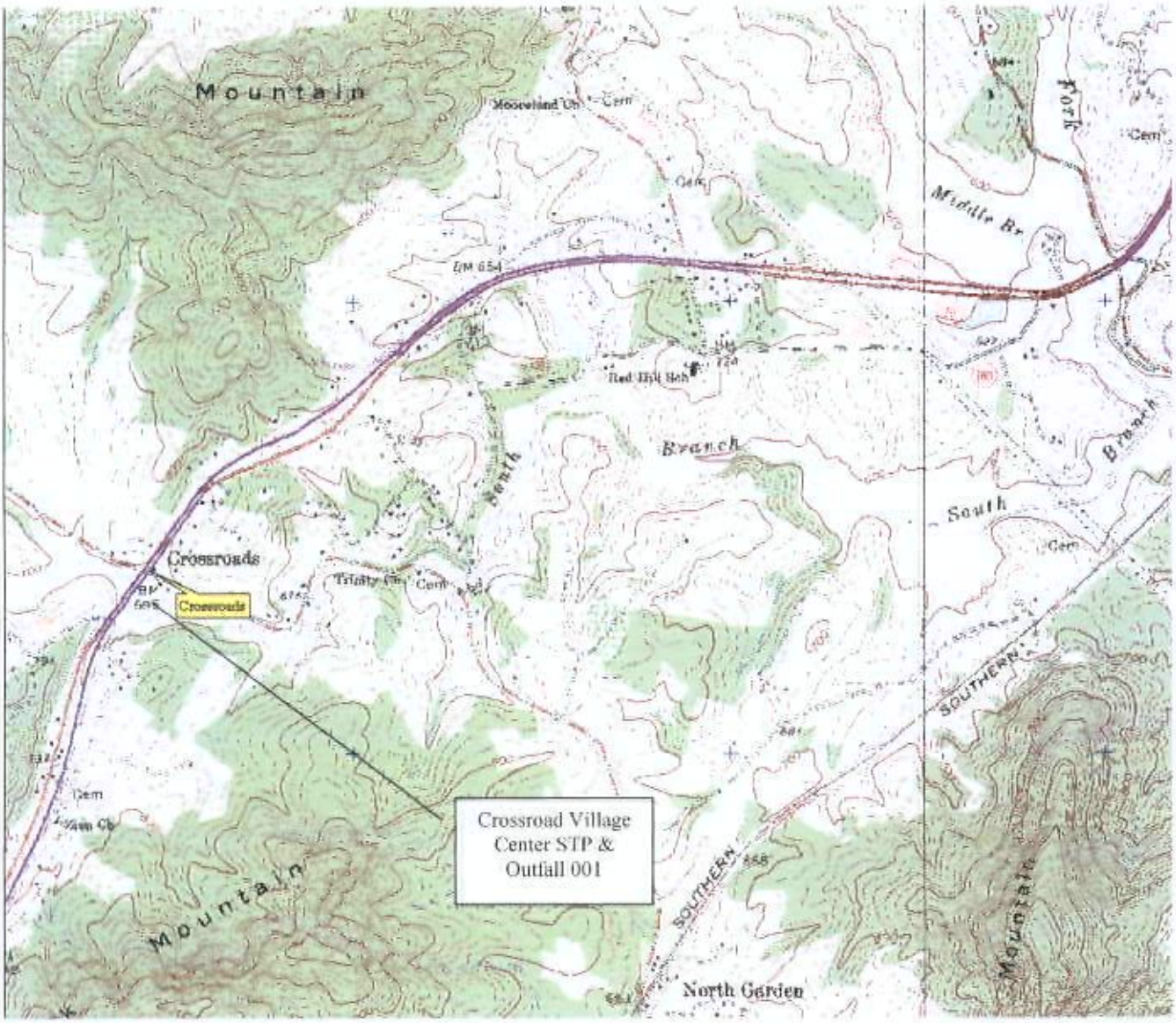
DISCHARGE LOCATION DESCRIPTION AND RECEIVING WATERS INFORMATION

This facility discharges to the South Branch N.F. Hardware River in Albemarle County. The location of Outfall 001 is shown on the topographical map below.

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the enclosed Water Quality Assessment TMDL Review and corresponding map.

A Flow Frequency Determination for the South Branch N.F. Hardware River was provided by memo dated January 13, 2009, and is presented in this appendix.

A mixing zone analysis was conducted at the point of discharge per DEQ's mixing program (MIX.EXE) and is presented in this appendix.



WATER QUALITY ASSESSMENTS TMDL REVIEW
MIDDLE JAMES RIVER BASIN
1/5/2009

IMPAIRED SEGMENT:

SEGMENT ID	STREAM	SEGMENT START	END	LENGTH	PARAMETER
VAV-H18R-01	Hardware River North Fork	10.39	0.00	10.39	Fecal Coliform
VAV-H23R-01	Broad Axe Run	1.95	0.00	1.95	Benthic
VAV-H23R-03	Mechums River	24.5	10.44	14.06	Benthic
VAV-H26R-02	Ivy Creek	13.31	8.08	5.23	pH

PERMITS:

PERMIT	FACILITY	STREAM	MILE	LAT	LONG	WBID
VA0083291	Crossroads Village Center STP	N.F. Hardware Riv-Sth Brh	5.61	375720	783934	VAV-H18R

MONITORING STATIONS

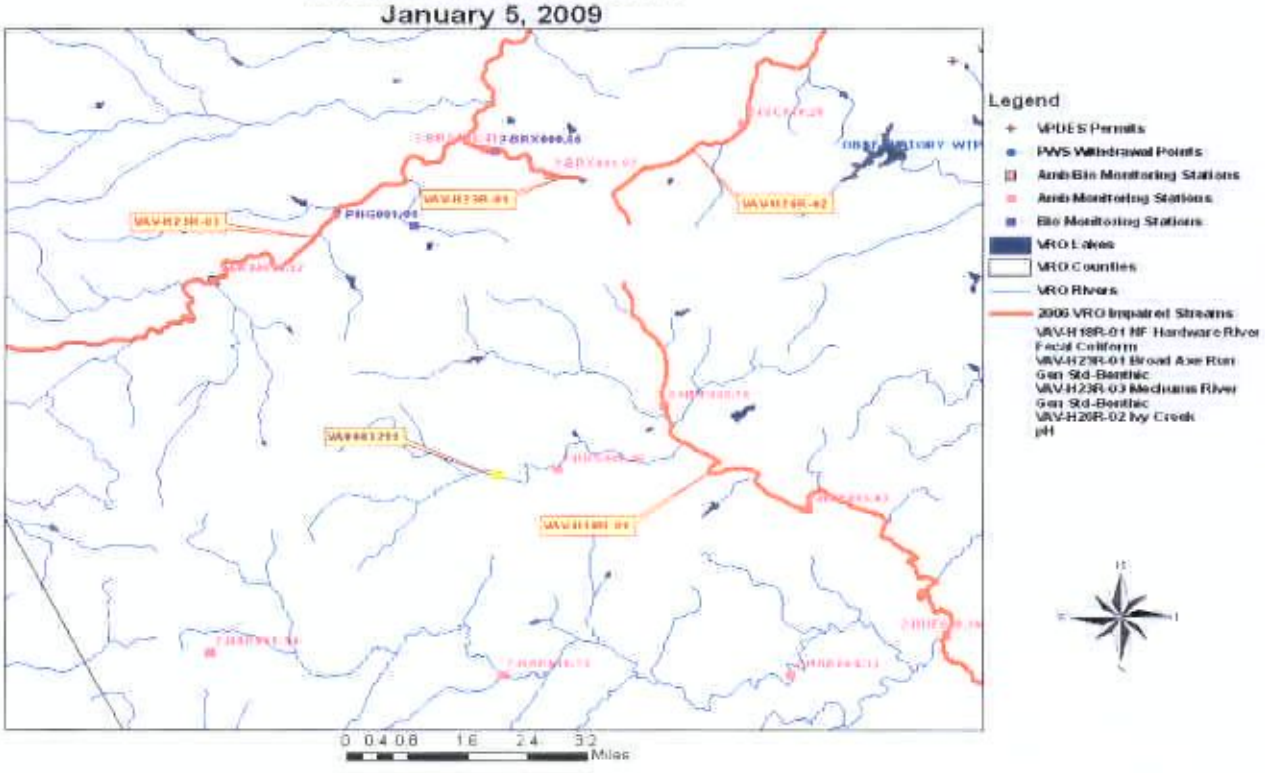
STREAM	NAME	MILE	RECORD	LAT	LONG
Mechums River	2-MCM018.92	18.92	07/01/94	380005	0784341
Broad Axe Creek	2-BRX000.43	0.43	7/1/97	380152	0783940
Broad Axe Creek	2-BRX001.62	1.62	7/1/97	380131	0783845
N F Hardware River	2-HNF008.28	8.28	07/01/95	375817	0783706
Ivy Creek	2-IVC010.20	10.2	6/98	380212	0783554
Hardware River, South For	2-HAK001.34	1.34	7/2001	375457	0784347
Hardware River, South For	2-HAK010.23	10.23	7/2001	375437	0783931
Hardware River, North For	2-HNF000.10	0.1	7/2001	37556	0783310
Hardware River, North For	2-HNF005.03	5.03	7/2001	375650	0783550
Hardware River, S. Branch	2-HNS002.40	2.4	7/2001	375725	0783841
Hardware River, South For	2-HAK004.34	4.34	4/1/03	375435	0783517
Broad Axe Creek	2-BRX000.66	0.66	05/07/97	380151	0783933
Pounding Branch	2-PNG001.09	1.09	05/07/97	380049	0784044

PUBLIC WATER SUPPLY INTAKES:

OWNER	STREAM	RIVER MILE

None

Crossroads Village Center STP-TMDL Information
Middle James River Basin
January 5, 2009



MEMORANDUM
DEPARTMENT OF ENVIRONMENTAL QUALITY
VALLEY REGIONAL OFFICE

4411 Early Road – P.O. Box 3000 Harrisonburg, VA 22801

SUBJECT: Flow Frequency Determination (FFD)
Crossroads Village Center STP, VPDES Permit No. VA0083291, Albemarle County

TO: Permit Processing File

FROM: Jason R. Dameron

DATE: January 13, 2009

This memo supersedes Larry Hough's flow frequency determination dated June 24, 2004.

The Crossroads Village Center STP discharges to the South Branch North Fork Hardware River near Crossroads, VA. Stream flow frequencies are required at this site for developing effluent limitations for this VPDES permit reissuance.

The USGS conducted several flow measurements on the South Branch North Fork Hardware River from 1951 to 1954. The measurements were made at the Route 29 bridge, approximately 500 feet upstream of the Crossroads Village Center STP discharge point. The measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the Hardware River below Briery Run, near Scottsville, VA (02030000). The measurements were plotted on a logarithmic graph and a best fit line and equation were established. The resulting equation was used to determine the required flow frequencies of the discharge point from those of the reference gage. The flow frequencies of both the reference gage and the discharge point are given below. The analysis assumes that there are no significant withdrawals, discharges, or springs lying upstream of the gage or the discharge.

Hardware River below Briery Run, near Scottsville, VA (02030000):
Drainage Area = 116 mi^2

1Q30 =	2.1 cfs	High Flow 1Q10 =	24 cfs
1Q10 =	4.0 cfs	High Flow 7Q10 =	28 cfs
7Q10 =	4.3 cfs	High Flow 30Q10 =	38 cfs
30Q10 =	7.6 cfs	HM =	43 cfs
30Q5 =	15 cfs	Annual Average =	128 cfs

South Branch North Fork Hardware River near Crossroads, VA (02029400), at the discharge point:
Drainage Area = 6.6 mi^2

1Q30 =	0.14 cfs	0.09 MGD	High Flow 1Q10 =	1.66 cfs	1.07 MGD
1Q10 =	0.27 cfs	0.17 MGD	High Flow 7Q10 =	1.94 cfs	1.25 MGD
7Q10 =	0.29 cfs	0.19 MGD	High Flow 30Q10 =	2.65 cfs	1.71 MGD
30Q10 =	0.52 cfs	0.34 MGD	HM =	3.00 cfs	1.94 MGD
30Q5 =	1.03 cfs	0.66 MGD	Annual Average =	9.09 cfs	5.87 MGD

The high flow months are December through May.

Mixing Zone Predictions

Annual

Effluent Flow = 0.020 MGD
Stream 7Q10 = 0.19 MGD
Stream 30Q10 = 0.34 MGD
Stream 1Q10 = 0.17 MGD
Stream slope = 0.006 ft/ft
Stream width = 4 ft
Bottom scale = 2
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .1844 ft
Length = 81.04 ft
Velocity = .4407 ft/sec
Residence Time = .0021 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .2582 ft
Length = 59.88 ft
Velocity = .5395 ft/sec
Residence Time = .0013 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .1733 ft
Length = 85.66 ft
Velocity = .4243 ft/sec
Residence Time = .0561 hours

Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

Virginia DEQ Mixing Zone Analysis Version 2.1

APPENDIX C

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

Effluent Limitations

A comparison of technology and water quality-based limits was performed, and the most stringent limits were selected. The selected limits are summarized in the table below.

Outfall 001 **Final Limits** **Design Flow: 0.020 MGD**

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Avg.		Maximum		Frequency	Sample Type
Flow (MGD)	4	NL		NL		1/Quarter	Estimate
BOD_5	1,2,5	30 mg/L	2.3 kg/d	60 mg/L	4.5 kg/d	1/Quarter	Grab
TSS	1,2	30 mg/L	2.3 kg/d	60 mg/L	4.5 kg/d	1/Quarter	Grab
Effluent Chlorine (TRC)*	3	0.087 mg/L		0.18 mg/L		1/Day	Grab
E. coli* (geometric mean)	3,6	126 N/100 mL		NA		2/Month At least 7 days apart 10 am to 4 pm	Grab
E. coli** (geometric mean)	3,6	126 N/100 mL		NA		1/Week 10 am to 4 pm	Grab
---	---	Minimum		Maximum		---	---
pH	1,3	6.0 S.U.		9.0 S.U.		1/Quarter	Grab
Contact Chlorine (TRC)*	2,3	1.0 mg/L		NA		1/Day	Grab

NL = No Limitation, monitoring required NA = Not Applicable

* = Applicable only if chlorination is used for disinfection
** = Applicable if an alternative to chlorination is used for disinfection.

Bases for Effluent Limitations

1. Coin-Operated Laundry General Permit
2. Best Professional Judgment (BPJ)
3. Water Quality Standards
4. VPDES Permit Regulation
5. Regional Stream Model (v 4.11) simulation
6. Hardware River Bacteria TMDL approved April 10, 2008

LIMITING FACTORS – OVERVIEW:

The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (9 VAC 25-720-50 Potomac-Shenandoah River Basin)	
A. TMDL limits	**E. coli**
B. Non-TMDL WLAs	**None**
C. CBP (TN & TP) WLAs	**None**
Federal Effluent Guidelines	**None**
BPJ/Agency Guidance limits	**TRC (contact)**
Water Quality-based Limits - numeric	**BOD_5, DO, TKN, Ammonia-N, TRC (effluent), E. coli, pH**
Water Quality-based Limits - narrative	**None**
Toxics Management Plan (TMP)	**Not applicable**
Storm Water Limits	**Not applicable**
Coin-Operated Laundry General Permit	**Temperature, pH, BOD_5, DO, TSS, TRC, E. coli**

EVALUATION OF THE EFFLUENT

The majority of the flow discharged from Outfall 001 is from a coin-operated laundry. The Coin-Operated Laundry General Permit (GP) was used as a guide for evaluating the effluent from this facility and specifies monitoring for the following parameters.

Flow
Temperature
pH
BOD_5
Dissolved Oxygen
TSS
TRC
E. Coli

The parameters are addressed as follows:

Flow

The previous permit required daily flow monitoring. In accordance with the GP, quarterly flow monitoring has been required at this reissuance.

Temperature

In accordance with the GP the effluent temperature shall not exceed a maximum of 32 °C and cause an increase in temperature of the receiving stream of more than 3°C above the natural water temperature. The effluent shall not cause the temperature in the receiving stream to change more than 2 °C per hour. Natural temperature is defined as that temperature of a body of water (measured as the arithmetic average over one hour) due solely to natural conditions without the influence of any point-source discharge. Based on an evaluation of the existing effluent temperature data, the discharge from this facility has not exceeded 32 °C and is not expected to exceed 32 °C in the future; therefore, monitoring and limits for temperature were not included in this permit.

pH

The previous permit required daily pH monitoring. In accordance with the GP, quarterly pH monitoring has been required at this reissuance. The pH limits reflect the current Water Quality Standard for pH in the receiving stream and have been carried forward from the previous permit.

BOD_5 and DO

The discharge from this facility was previously modeled using the Regional Stream Model. The discharge was remodeled at this reissuance because new stream flow information was available.

The predicted minimum DO in the previous fact sheet was 6.8 mg/L. This DO baseline must be maintained under any expanded design flow scenarios. The values below were determined to maintain the DO baseline.

$CBOD_5$	=	25 mg/L
TKN	=	20 mg/L
D.O.	=	1.6 mg/L

Because a $CBOD_5$ concentration of 25 mg/L is considered equivalent to a BOD_5 concentration of 30 mg/L, a BOD_5 monthly average limit of 30 mg/L (2.3 kg/d) has been carried forward from the previous permit in order to comply with antibacksliding requirements. A daily maximum limit for 60 mg/L has been included in accordance with the GP and has replaced the previous maximum weekly average limit. The previous permit required monthly BOD_5 monitoring. In accordance with the GP, quarterly BOD_5 monitoring has been required at this reissuance.

Based on the model, it was determined that no TKN limits were needed because based on an evaluation of existing effluent data this treatment plant is not expected to discharge effluent with TKN concentrations greater than 20 mg/L.

The previous stream model did not include the need for a DO limit. The revised stream model at this reissuance indicated that an effluent DO of 1.6 mg/L is needed to maintain the DO baseline. In order to verify that the existing treatment works can consistently achieve an effluent DO of 1.6 mg/L, a special condition has been included in the permit that requires weekly monitoring of effluent DO from June – August 2010. If the data indicates that an effluent DO of 1.6 mg/L is not consistently achieved, the permit may be modified to include a DO limit.

A detailed discussion of the Regional Stream Model (including model inputs and model outputs) is included this appendix.

TSS

The previous permit required monthly TSS monitoring. In accordance with the GP, quarterly TSS monitoring has been required at this reissuance. The TSS monthly average limit of 30 mg/L (2.3 kg/d) has been carried forward from the previous permit in order to comply with antibacksliding requirements. Also, no documented water quality impacts have resulted from solids in the discharge. A daily maximum limit for 60 mg/L has been included in accordance with the GP and has replaced the previous maximum weekly average limit.

TRC and E. Coli

Crossroad Village Center STP was assigned an E. coli WLA of 3.48×10^{11} cfu/year in the Hardware River Bacteria TMDL. Based on the facility's design flow of 0.020 MGD, the E. coli waste load allocation corresponds to a concentration limit of 126 cfu/100 mL.

The permit previously monitored the disinfection of treated wastewater through minimum TRC limits, with samples collected immediately prior to dechlorination. While these effluent limits and monitoring requirements are retained in this permit due to the fact that sewage is also treated by the facility, the addition of E. coli effluent limits is intended to further confirm adequate disinfection. If chlorination is used for disinfection, the permit requires 2/Month sampling to meet a monthly geometric mean limit. If an alternative to chlorination is used for disinfection at the design flow, the permit requires 1/Week sampling to demonstrate compliance with a monthly geometric mean limit.

EVALUATION OF THE EFFLUENT – NUTRIENTS

Nutrient monitoring and limits are currently not required for this industrial facility.

EVALUATION OF THE EFFLUENT – TOXIC POLLUTANTS

Data Input Form for WQS.WLA Spreadsheet

Stream: Water quality data for the receiving stream was obtained from Ambient Monitoring Station No. 2-HRD011.57 on the Hardware River (see Table 1 below). A Flow Frequency Determination for the receiving stream was generated January 13, 2009, and is included in Appendix B. The "Wet Season" or "High Flow" months are December through May.

Table 1. Stream Information			
90%-tile Annual Temp (°C)	24.7	90%-tile pH (SU) =	8.2
90%-tile Wet Temp (°C) =	18.0	10%-tile pH (SU) =	6.8
Mean Hardness (mg/L) =	21.2		

Discharge: The temperature and pH values for the Crossroads Village Center STP were obtained from the daily operational logs submitted with the Discharge Monitoring Reports (DMRs) by the permittee. The hardness value was obtained from monitoring performed by DEQ staff on January 8, 2004.

Table 2. Effluent Information			
90%-tile Annual Temp (°C)	24.0	90%-tile pH (SU) =	7.6
90%-tile Wet Temp (°C) =	20.0	10%-tile pH (SU) =	7.2
Mean Hardness (mg/L) =	104		

Water Quality Criteria (WQC) and WLAs were calculated for the WQS parameters for which data is available. Those WQC and WLAs are presented in this appendix. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- Ammonia-N: No limits were determined to be necessary for Ammonia-N.
- TRC: A more stringent monthly average limit was determined to be necessary. A review of the facility's monitoring data indicated that the facility can consistently meet the more stringent limit; therefore, no schedule of compliance for meeting the more stringent limit was included. A daily maximum limit has been included and has replaced the previous maximum weekly average limit.

WQC_WLA Spreadsheet: Input

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name: Crossroads Village Center STP
Receiving Stream: South Branch N.F. Hardware River
Permit No.: VA0083291
Date: 6/1/2009
Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information			Effluent Information	
Mean Hardness (as CaCO3) =	21.2 mg/L	1Q10 (Annual) =	0.17 MGD	Annual	- 1Q10 Flow =	100 %	Mean Hardness (as CaCO3) =	104 mg/L
90% Temperature (Annual) =	24.7 deg C	7Q10 (Annual) =	0.19 MGD		- 7Q10 Flow =	100 %	90% Temp (Annual) =	24 deg C
90% Temperature (Wet season) =	18 deg C	30Q10 (Annual) =	0.34 MGD		- 30Q10 Flow =	100 %	90% Temp (Wet season) =	20 deg C
90% Maximum pH =	8.2 SU	1Q10 (Wet season) =	1.07 MGD	Wet Season	- 1Q10 Flow =	100 %	90% Maximum pH =	7.6 SU
10% Maximum pH =	6.8 SU	30Q10 (Wet season) =	1.71 MGD		- 30Q10 Flow =	100 %	10% Maximum pH =	7.2 SU
Tier Designation =	2	30Q5 =	0.66 MGD				1992 Discharge Flow =	0.020 MGD
Public Water Supply (PWS) Y/N? =	N	Harmonic Mean =	1.94 MGD				Discharge Flow for Limit Analysis =	0.020 MGD
V(alley) or P(iedmont)? =	P	Annual Average =	5.87 MGD					
Trout Present Y/N? =	N							
Early Life Stages Present Y/N? =	Y							

Footnotes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
2. All flow values are expressed as Million Gallons per Day (MGD).
3. Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
4. Hardness expressed as mg/l CaCO3. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO3.
5. "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
6. Carcinogen "Y" indicates carcinogenic parameter.
7. Ammonia WQSs selected from separate tables, based on pH and temperature.
8. Metals measured as Dissolved, unless specified otherwise.
9. WLA = Waste Load Allocation (based on standards).
10. WLA = Waste Load Allocation (based on standards).
11. WLAs are based on mass balances (less background, if data exist).
12. Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.
13. Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.
14. Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Actual flows employed are a function of the mixing analysis and may be less than the actual critical flows.
15. Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC_WLA Spreadsheet: Output

Facility Name:	Permit No.:	WATER QUALITY CRITERIA 0.020 MGD Discharge Flow - Mix per "Mixer"				NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS 0.020 MGD Discharge - Mix per "Mixer"		
Crossroads Village Center STP	VA0083291			Human Health				
Receiving Stream:	Date:	Aquatic Protection		Public Water	Other Surface	Aquatic Protection		Human
South Branch N.F. Hardware River	6/1/2009	Acute	Chronic	Supplies	Waters	Acute	Chronic	Health
Toxic Parameter and Form	Carcinogen?							
Ammonia-N (Annual)	N	7.2E+00 mg/L	1.0E+00 mg/L	None	None	6.8E+01 mg/L	1.9E+01 mg/L	N/A
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None	None	1.8E-01 mg/L	1.2E-01 mg/L	N/A

STAT.EXE Results

Ammonia-N (Annual)

Chronic averaging period = 30
WLAa = 68
WLAc = 19
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:
observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are: 9

Total Residual Chlorine

Chronic averaging period = 4
WLAa = 0.18
WLAc = 0.12
Q.L. = 0.1
# samples/mo. = 30
# samples/wk. = 7

Summary of Statistics:
observations = 1
Expected Value = 20
Variance = 144
C.V. = 0.6
97th percentile daily values = 48.6683
97th percentile 4 day average = 33.2758
97th percentile 30 day average= 24.1210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 0.175508974086388
Average Weekly Limit = 0.107184595324212
Average Monthly Limit = 8.69859620059178E-02

The data are: 20

PROTOCOL FOR EVALUATION OF EFFLUENT TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011 (8/24/00). According to this guidance, industrial facilities for which a Toxics Management Program is not required are treated as if there are no toxic pollutants in their discharge unless there is actual evidence to indicate otherwise.

Acute and Chronic Waste Load Allocations (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health Waste Load Allocations (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh}, the WLA_{hh} was imposed as the limit.

Since there are no data available for any toxic pollutants immediately upstream of this discharge, all upstream background pollutant concentrations are assumed to be "0".

The steps used in evaluating available effluent data from industrial facilities for which a Toxics Management Program is not required are as follows:

A. If all data are reported as "below detection" or < the required Quantification Level (QL) (or, for metals, in a form other than "dissolved"), then the data are not suitable for analysis and no further monitoring is required.

B. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.

B.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.

B.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.

Parameter	CASRN	Type	QL (µg/L)	Data (µg/L unless noted otherwise)	Source of Data	Data Eval
Ammonia-N (mg/L) (Annual)	766-41-7	X	0.2 mg/L	**9 mg/L**	a	B.1
TRC (mg/L)	7782-50-5	X	0.1 mg/L	**20 mg/L**	a	B.2

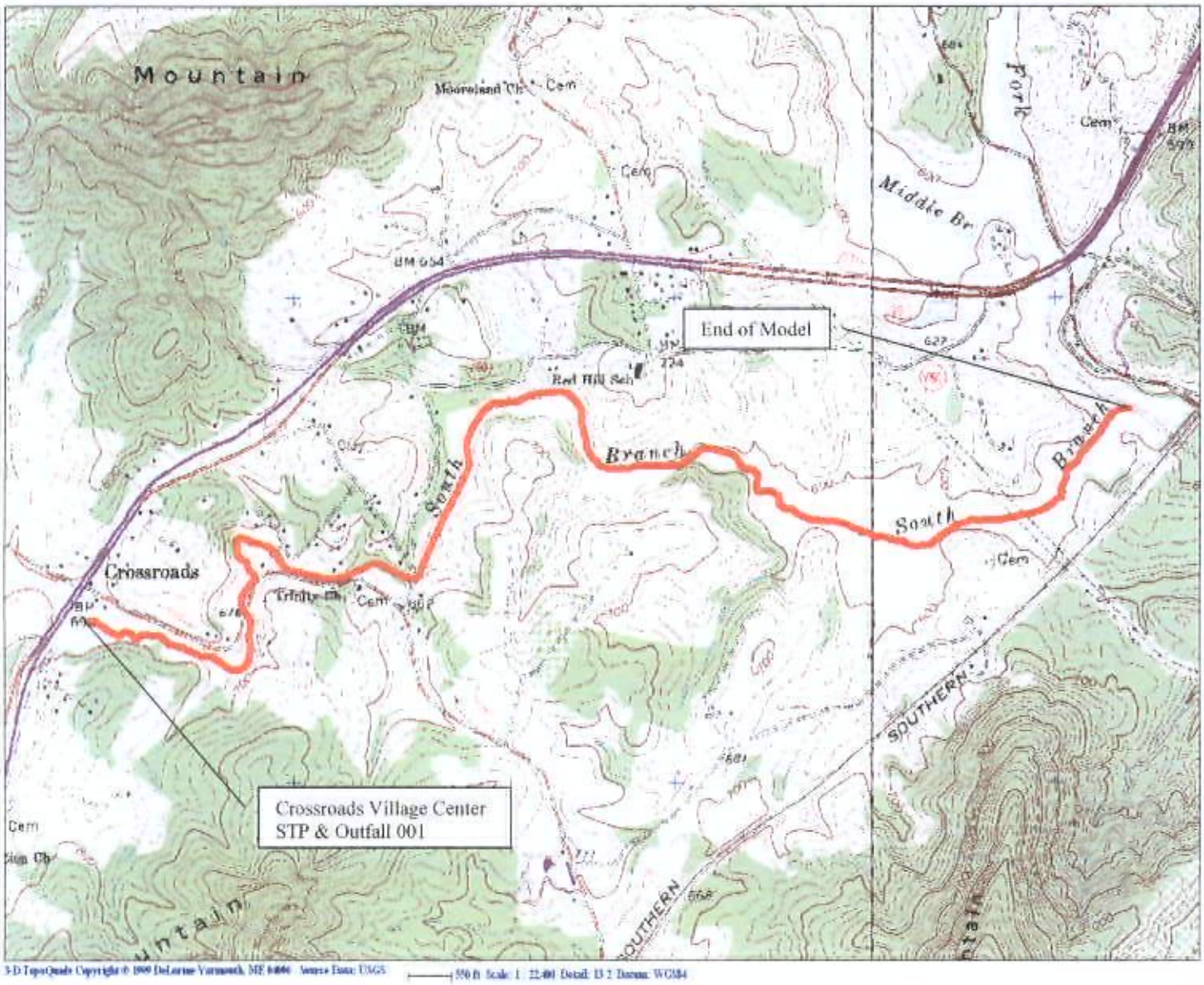
"Type" column indicates a category (see below) assigned to the referenced substance.
M = Metals
X = Miscellaneous Compounds and Parameters

"Source of Data" codes:
a = default effluent concentration

"Data Evaluation" codes:
See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

Map of Model:

Model begins at the Crossroads Village Center STP Outfall 001 and ends 3.61 miles downstream prior to the confluence with the N.F. Hardware River.



Modeling Input Data:

REGIONAL MODELING SYSTEM VERSION 4.11
Model Input File for the Rivanna River Flow Model Part III

Water Quality Standards Information

Stream Name:	SOUTH BRANCH N.F. HARDWARE RIVER
River Basin:	James River Basin
Section:	10
Class:	III - Nontidal Waters (Coastal and Piedmont)
Special Standards:	None

Background Flow Information

Gauge Used:	FFD Dated 1/13/09
Gauge Drainage Area:	6.6 Sq.Mi.
Gauge 7Q10 Flow:	0.19 MGD
Headwater Drainage Area:	6.6 Sq.Mi.
Headwater 7Q10 Flow:	0.19 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges:	0 MGD
Incremental Flow in Segments:	0 MGD/Sq.Mi.

Background Water Quality

Background Temperature:	24.7 Degrees C
Background cBOD5:	2 mg/l
Background TKN:	0 mg/l
Background D.O.:	7.355149 mg/l

Model Segmentation

Number of Segments:	1
Model Start Elevation:	700 ft above MSL
Model End Elevation:	590 ft above MSL

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	CROSSROADS VILLAGE CENTER STP
VPDES Permit No.:	VA0083291

Discharger Flow Information

Flow:	0.020 MGD
cBOD5:	25 mg/l
TKN:	20 mg/l
D.O.:	1.6 mg/l
Temperature:	24 Degrees C

Geographic Information

Segment Length:	3.61 miles
Upstream Drainage Area:	6.6 Sq.Mi.
Downstream Drainage Area:	6.6 Sq.Mi.
Upstream Elevation:	700 Ft.
Downstream Elevation:	590 Ft.

Hydraulic Information

Segment Width:	4 Ft.
Segment Depth:	0.184 Ft.
Segment Velocity:	0.441 Ft./Sec.
Segment Flow:	0.21 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Rectangular
Character:	Moderately Meandering
Pool and Riffle:	No
Bottom Type:	Silt
Sludge:	None
Plants:	None
Algae:	None

Model Output:

Model is for SOUTH BRANCH N.F. HARDWARE RIVER.
Model starts at the CROSSROADS VILLAGE CENTER STP discharge.

Background Data

7Q10 (mgd)	cBOD5 (mg/l)	TKN (mg/l)	DO (mg/l)	Temp deg C
0.19	2	0	7.355	24.7

Discharge/Tributary Input Data for Segment 1

Flow (mgd)	cBOD5 (mg/l)	TKN (mg/l)	DO (mg/l)	Temp deg C
0.02	25	20	1.6	24

Hydraulic Information for Segment 1

Length (mi)	Width (ft)	Depth (ft)	Velocity (ft/sec)
3.61	4	0.184	0.441

Initial Mix Values for Segment 1

Flow (mgd)	DO (mg/l)	cBOD (mg/l)	nBOD (mg/l)	DOSat (mg/l)	Temp deg C
0.21	6.807	10.476	7.01	8.196	24.63334

Rate Constants for Segment 1. - (All units Per Day)

k1	k1@T	k2	k2@T	kn	kn@T	BD	BD@T
1.2	1.485	18.283	20.406	0.4	0.571	0	0

Output for Segment 1
Segment starts at CROSSROADS VILLAGE CENTER STP

Total Dist. (mi)	Segm. Dist. (mi)	DO (mg/l)	cBOD (mg/l)	nBOD (mg/l)
0	0	6.807	10.476	7.01
0.1	0.1	6.912	10.263	6.955
0.2	0.2	6.995	10.054	6.9
0.3	0.3	7.062	9.849	6.846
0.4	0.4	7.117	9.648	6.792
0.5	0.5	7.162	9.452	6.738
0.6	0.6	7.2	9.26	6.685
0.7	0.7	7.233	9.071	6.632
0.8	0.8	7.261	8.886	6.58
0.9	0.9	7.286	8.705	6.528
1	1	7.309	8.528	6.477
1.1	1.1	7.329	8.354	6.426
1.2	1.2	7.348	8.184	6.375
1.3	1.3	7.366	8.017	6.325
1.4	1.4	7.376	7.854	6.275
1.5	1.5	7.376	7.694	6.226
1.6	1.6	7.376	7.537	6.177

1.7	1.7	7.376	7.384	6.128
1.8	1.8	7.376	7.234	6.08
1.9	1.9	7.376	7.087	6.032
2	2	7.376	6.943	5.984
2.1	2.1	7.376	6.802	5.937
2.2	2.2	7.376	6.663	5.89
2.3	2.3	7.376	6.527	5.844
2.4	2.4	7.376	6.394	5.798
2.5	2.5	7.376	6.264	5.752
2.6	2.6	7.376	6.136	5.707
2.7	2.7	7.376	6.011	5.662
2.8	2.8	7.376	5.889	5.617
2.9	2.9	7.376	5.769	5.573
3	3	7.376	5.652	5.529
3.1	3.1	7.376	5.537	5.485
3.2	3.2	7.376	5.424	5.442
3.3	3.3	7.376	5.314	5.399
3.4	3.4	7.376	5.206	5.356
3.5	3.5	7.376	5.1	5.314
3.6	3.6	7.376	5	5.272
3.61	3.65	7.376	5	5.268

END OF FILE

The model was stopped 3.61 miles downstream of the discharge point. Extending the model beyond this point was not deemed necessary because both the DO and $CBOD_u$ had returned to background levels and the receiving stream enters NF Hardware River, which provides substantial dilution. It is expected that the $nBOD_u$ will continue to be assimilated without impacting in-stream DO.

APPENDIX D

PERMIT CHANGES AND BASES FOR SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page

- Content and format as prescribed by the VPDES Permit Manual.
- The city reference was removed.
- The 911 physical address was updated.

Part I.A.1. **Effluent Limitations and Monitoring Requirements:** Bases for effluent limits provided in previous pages of this fact sheet. Monitoring requirements based on the VPDES Permit Manual and the Laundromat General Permit.

Updates Part I.A.1. of the previous permit with the following:

- Slight changes were made to the format and introductory language.
- The monitoring frequencies for Flow, pH, BOD_5, and TSS were reduced to 1/Quarter.
- The Maximum Weekly Average limits for BOD_5 and TSS was replaced with Daily Maximum limits.
- The Maximum Weekly Average limit for TRC was revised to a Maximum Limit, which resulted in a less stringent limit.
- Monitoring and limits were included for E. coli.
- A footnote regarding the 2/Month monitoring associated with E. coli was added.

Part I.B. **Additional TRC Effluent Limitations and Monitoring Requirements:** *Updates Part I.B. of the previous permit.* Required by Sewage Collection and Treatment (SCAT) Regulations and 9 VAC 25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

Part I.C. **Effluent Limitations and Monitoring Requirements – Additional Instructions:** *Updates Part I.C. of the previous permit.* Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

Part I.D.1. **95% Capacity Reopener:** *Identical to Part I.D.1. of the previous permit.* Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for certain permits.

Part I.D.2. **Indirect Dischargers:** *Identical to Part I.D.2. of the previous permit.* Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 for all STPs that receive waste from someone other than the owner of the treatment works. Included for this industrial facility per BPJ due to the significant sewage component.

Part I.D.3. **Materials Handling/Storage:** *Identical to Part I.D.3. of the previous permit.* 9 VAC 25-31-280.B.2. requires that the types and quantities of "wastes, fluids, or pollutants which are … treated, stored, etc." be addressed for all permitted facilities.

Part I.D.4. **O&M Manual Requirement:** *Updates Part I.D.4. of the previous permit.* Code of Virginia at 62.1-44.16, VPDES Permit Regulation 9 VAC 25-31-190 E, and 40 CFR 122.41(e) require proper operation and maintenance of the permitted facility. Added requirement to describe procedures for documenting compliance with the permit requirement that there shall be no discharge of floating solids or visible foam in other than trace amounts.

Part I.D.5 **SMP Requirement:** *Updates Part I.D.7. of the previous permit.* VPDES Permit Regulation 9 VAC 25-31-100 J, 220 B 2, and 420 through 720, and 40 CFR Part 503 require all STPs to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9 VAC 25-32-10 *et seq.*). Included for this industrial facility per BPJ due to the significant sewage component.

Part I.D.6 **Reliability Class:** *Identical to Part I.D.8. of the previous permit.* Required by SCAT Regulations 9 VAC 25-790. Class II status was assigned to this facility. Included for this industrial facility per BPJ due to the significant sewage component.

Part I.D.7 **Treatment Works Closure Plan:** *Identical to Part I.D.9. of the previous permit.* Required for all STPs per the State Water Control Law at 62.1-44.18.C. and 62.1-44.15:1.1., and the SCAT Regulations at 9 VAC 25-790-450.E. and 9 VAC 25-790-120.E.3. Included for this industrial facility per BPJ due to the significant sewage component.

Part I.D.8 **Reopeners:**

a. *New Requirement:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

b. *New Requirement:* 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

c. *Updates Part I.D.6. of the previous permit:* Required by the VPDES Permit Regulation, 9 VAC 25-31-220.C, for all permits issued to STPs. Included for this industrial facility per BPJ.

d. *New Requirement:* VPDES Permit Regulation 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality criteria.

Part I.D.9 **Additional Effluent Monitoring:** *New Requirment:* State Water Control Law at 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent for DO.

Part II CONDITIONS APPLICABLE TO ALL VPDES PERMITS. VPDES Permit Regulation 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

Deletions: Part I.D.5. (CTC/CTO Requirement) of the previous permit was deleted at this reissuance because the facility has been classified as industrial.

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the continued release of treated wastewater into a water body in Albemarle County, Virginia.

First Public Notice Issue Date: (**to be supplied by newspaper**)

PUBLIC COMMENT PERIOD: 30 days following first public notice issue date
PERMIT NAME AND NUMBER: Virginia Pollutant Discharge Elimination System Permit – Wastewater (VA0083291) issued by DEQ, under the authority of the State Water Control Board
NAME AND ADDRESS OF APPLICANT: North Garden Crossroad, Inc., P.O. Box 149, North Garden, VA 22959
NAME AND ADDRESS OF FACILITY: Crossroads Village Center STP, 4916 Plank Road, North Garden, VA
PROJECT DESCRIPTION: North Garden Crossroad, Inc. has applied for reissuance of the referenced permit. The applicant proposes to release treated industrial wastewater at a rate of 0.020 million gallons per day into the South Branch N.F. Hardware River in Albemarle County in the N.F Hardware River/S.F. Hardware River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: organic matter, solids, chlorine, bacteria, and pH. Sludge from the treatment process will be pumped and hauled to Moores Creek Regional STP in Albemarle County, Virginia where it will undergo further treatment

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.
CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:
Name: Keith A. Showman
Address: Valley Regional Office, 4411 Early Road, P.O. Box 3000, Harrisonburg, Virginia, 22801
Phone: (540) 574-7836 E-mail: keith.showman@deq.virginia.gov Fax: (540) 574-7878
The public may review the draft permit and application at the DEQ office named above.

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Crossroad Village Center STP

NPDES Permit Number: VA0083291

Permit Writer Name: Keith A. Showman

Date: August 10, 2009

Major [ ] **Minor** [✓] **Industrial** [✓] **Municipal** [ ]

I.A. Draft Permit Package Submittal Includes:	Yes	No	N/A
1. Permit Application?	✓		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	✓		
3. Copy of Public Notice?	✓		
4. Complete Fact Sheet?	✓		
5. A Priority Pollutant Screening to determine parameters of concern?	✓		
6. A Reasonable Potential analysis showing calculated WQBELs?	✓		
7. Dissolved Oxygen calculations?	✓		
8. Whole Effluent Toxicity Test summary and analysis?			✓
9. Permit Rating Sheet for new or modified industrial facilities?	✓		

I.B. Permit/Facility Characteristics	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		✓	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	✓		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	✓		

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		✓	
5. Has there been any change in streamflow characteristics since the last permit was developed?	✓		
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		✓	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	✓		
8. Does the facility discharge to a 303(d) listed water?	✓		
a. Has a TMDL been developed and approved by EPA for the impaired water?	✓		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			✓
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	✓		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?	✓		
10. Does the permit authorize discharges of storm water?		✓	
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		✓	
12. Are there any production-based, technology-based effluent limits in the permit?		✓	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		✓	
14. Are any WQBELs based on an interpretation of narrative criteria?		✓	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		✓	
16. Does the permit contain a compliance schedule for any limit or condition?		✓	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		✓	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	✓		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		✓	
20. Have previous permit, application, and fact sheet been examined?	✓		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Review Checklist – For Non-Municipals

(To be completed and included in the record for all non-POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet **or** permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	✓		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	✓		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	✓		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	✓		

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ)	Yes	No	N/A
1. Is the facility subject to a national effluent limitations guideline (ELG)?		✓	
a. If yes, does the record adequately document the categorization process, including an evaluation of whether the facility is a new source or an existing source?			✓
b. If no, does the record indicate that a technology-based analysis based on Best Professional Judgement (BPJ) was used for all pollutants of concern discharged at treatable concentrations?			✓
2. For all limits developed based on BPJ, does the record indicate that the limits are consistent with the criteria established at 40 CFR 125.3(d)?	✓		
3. Does the fact sheet adequately document the calculations used to develop both ELG and /or BPJ technology-based effluent limits?	✓		
4. For all limits that are based on production or flow, does the record indicate that the calculations are based on a "reasonable measure of ACTUAL production" for the facility (not design)?			✓
5. Does the permit contain "tiered" limits that reflect projected increases in production or flow?	✓		
a. If yes, does the permit require the facility to notify the permitting authority when alternate levels of production or flow are attained?	✓		
6. Are technology-based permit limits expressed in appropriate units of measure (e.g., concentration, mass, SU)?	✓		

II.C. Technology-Based Effluent Limits (Effluent Guidelines & BPJ) – cont.	Yes	No	N/A
7. Are all technology-based limits expressed in terms of both maximum daily, weekly average, and/or monthly average limits?	✓		
8. Are any final limits less stringent than required by applicable effluent limitations guidelines or BPJ?		✓	

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	✓		
2. Does the record indicate that any WQBELs were derived from a completed and EPA approved TMDL?	✓		
3. Does the fact sheet provide effluent characteristics for each outfall?	✓		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	✓		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	✓		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	✓		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	✓		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations where data are available)?	✓		
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	✓		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	✓		
6. For all final WQBELs, are BOTH long-term (e.g., average monthly) AND short-term (e.g., maximum daily, weekly average, instantaneous) effluent limits established?	✓		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	✓		
8. Does the fact sheet indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	✓		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters?	✓		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	✓		
3. Does the permit require testing for Whole Effluent Toxicity in accordance with the State's standard practices?			✓

II.F. Special Conditions	Yes	No	N/A
1. Does the permit require development and implementation of a Best Management Practices (BMP) plan or site-specific BMPs?		✓	
a. If yes, does the permit adequately incorporate and require compliance with the BMPs?			
2. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			✓
3. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?			✓

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	✓		

List of Standard Conditions – 40 CFR 122.41

Duty to comply
Duty to reapply
Need to halt or reduce activity not a defense
Duty to mitigate
Proper O & M
Permit actions
Property rights
Duty to provide information
Inspections and entry
Monitoring and records
Signatory requirement
Bypass
Upset
Reporting Requirements
Planned change
Anticipated noncompliance
Transfers
Monitoring reports
Compliance schedules
24-Hour reporting
Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for existing non-municipal dischargers regarding pollutant notification levels [40 CFR 122.42(a)]?	✓		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name Keith A. Showman

Title Environmental Engineer

Date August 10, 2009